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AUTHOR Adams, Arlene
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ABSTRACT

The study investigated the oral reading self-correction behaviors of three grade levels of readers (fifth, eighth, and eleventh) and three ability levels (normal readers reading in the instructional range, and learning-disabled readers reading in the instructional and frustration range.) Three locations of self corrections were measured: immediate correction, correction delayed by one word, and correction delayed by two or more words. Analysis indicated that the readers (N=48) in all groups self corrected most often immediately after the miscue (76.18%), and significantly less often delayed by one word (15.4%) and delayed by two or more words (7.16%). Results did not support the idea that disabled readers would self correct a lower percentage of their miscues than normal readers. Learning-disabled readers reading in the instructional range did not produce a higher percentage of self-corrections than the same readers reading texts in the frustration range. Since the study did not find that self-corrections are differentially produced by normal and disabled readers, it is not held that instructional programs designed to increase self-correction behaviors in disabled readers would not be productive. (DB)

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The Self-Correction Behaviors of Normal and Learning Disabled Readers, Grades 5, 8, and 11

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Arlene Adams
School of Education
University of Wisconsin-Parkside
Kenosha, Wisconsin

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Abstract

This study investigated the oral reading self-correction behaviors of three grade levels of readers, fifth, eighth, and eleventh, and three ability levels, normal readers reading in the instructional range, and learning disabled readers reading in the instructional and frustration range. Three locations of self-corrections were measured: immediate correction, correction delayed by 1 word, and correction delayed by 2 or more words. The result of this analysis showed that the readers in all groups self-corrected most often immediately after the miscue (76.18%), and significantly less often delayed by 1 word (15.40%) and delayed by 2 or more words (7.16%).

The results of this study contradict several assumptions and predictions that are common in the literature concerning self-correction behaviors, especially those of disabled readers. These results are discussed in terms of possible explanations of the contradictions.

The Self-Correction Behaviors of Normal and Learning-Disabled Readers, Grades 5, 8, and 11

The self-correction of miscues is considered to be an important measure of how well readers use context cues. Some research has found that disabled readers do not self-correct as often as normal readers. Because of this lack of self-correction behavior in disabled readers, direct instruction in self-correction strategies has been proposed as an important procedure to increase their reading ability. If the findings concerning self-correction behaviors of disabled readers are not valid, the proposed instructional procedures are not warranted. This study was designed to test some of the assumptions about the self-correction behaviors of normal and disabled readers.

Rationale and Purpose

This study was conducted in order to investigate the relative precentages and locations of the self-corrections made in oral reading by six groups of readers: normal and learning disabled readers in grades 5, 8, and 11. In the course of the analysis of many transcripts of normal and learning disabled readers, it became clear that there were several possible alternatives for the location at which a

miscue might be corrected. Some readers habitually corrected as soon as they had read the text word incorrectly. Others delayed correction until they had read one or several words beyond the miscue. It seems a reasonable hypothesis that the location of the correction reflects the readers use of the context. For example, a student who reads beyond a miscue before correcting it may be assumed to be using the context between the miscue and the correction to focus on the appropriate pronunciation of the word that was originally misread, and to correct it. A student who reads only the context before the miscue may be using only that previous context to monitor accuracy and determine what correction is to be made.

An additional variable examined by this study was that of reading level of the disabled readers. There is some question about the results of previous studies involving the oral reading word recognition accuracy of disabled readers. If the same texts are used for all readers, normal and disabled, the normal readers may be reading at the instructional level (3%-9% word recognition errors), while the disabled readers may be reading at the frustration level (more than 9% word recognition errors). These ranges have been synthesized from information presented in Harris and Sipay (1984). It has been suggested that this differential difficulty of the texts used for the ability groups involved may affect the results (Christie & Alonzo, 1980; Kibby,

1979; Pikulski & Shanahan, 1982). Because of this issue, is important to investigate the word-recognition results of disabled readers at both the instructional and frustration levels. Therefore this study used two levels of performance of learning disabled readers: texts produced with error percentages in the instructional range, and texts produced with error percentages in the frustration range.

It was initially planned to use both learning disabled and normal readers in both these error ranges. In order to provide texts which were sufficiently difficult for normal readers in 8th and 11th grade normal readers, several experts in literature were consulted for their recommendations of difficult texts. The most difficult texts that were suggested did not result in frustration-level preformances for the normal readers in 8th and 11th grades. Therefore, the plan to use both instructional and frustration range performances for the normal readers had to be discarded, and only instructional range performances were used for the normal readers.

Background

Self-Correction Behaviors

One important self-correction issue involves the differences between good and poor readers in awareness of the syntactic and semantic acceptability of their responses.

The literature suggests that better readers are more aware than poor readers of the miscues which interfere with meaning (K. Goodman, 1976; Weber, 1970). Therefore, it can be predicted that the normal readers in this study will be likely to self-correct a considerably higher percentage of their unacceptable miscues than their acceptable misuces. In contrast, the learning disabled readers can be expected to show a much smalled difference between the percentage of their corrections of acceptable and unacceptable misuces.

It is also suggested that the frequency of uncorrected miscues will increase as the reading materials increase in difficulty (Kibby, 1979; Pflaum, 1980). Self-corrections are viewed as occurring in direct relation to the extent of the readers' understanding of the text. Therefore, in this study, the frequency of uncorrected miscues can be predicted to be larger for frustration-range material than for instructional-range material.

As suggested by Leu (1982) in his extensive review of the use of the anal;ysis of oral reading miscues, it is critical thaat the categorization of oral reading miscues focus on the readers' use of contextual cues. The present study does provide such a focus in comparing the location of self-corrections made by disabled and normal readers.

The Use of Learning Disabled Subjects

The use of learning disabled subjects in research is fraught with methodological and definitional problems. These problems were reviewed by Harris and Sipay (1984), and the major issues were enumerated as follows:

1) No definition of learning disabilities was universally accepted;

2) The LD population within each commonly-accepted definition had been found to be heterogeneous rather than homogeneous;

3) Within each commonly accepted definition, the parts of the given definitions were not equally appled to all students.

In general, this study did not formally control for these subject variables. However, several informal controls were exerted. First, all subjects scored within the normal range on an IQ test. Second, all students were diagnosed and classified according to a aptitude-achievement-discrepancy model. Third, all students were served in daily resource-room instruction for a reading deficit.

Lipson and Wixson (1986) stated that much of the research in reading disability involves isolated skill areas, controlled in various ways. The results of studies constructed in such a way often fail to appear in naturalistic reading situations or fail to be replicated in

studies that control different skills, or control them differently. The fact that these behaviors fail to replicate in expected situations leads to extreme confusion about the behaviors that can be predicted for disabled readers. Lipson and Wixson assert that this confusion could be remedied by a change in the purpose and structure of studies into reading disability. Lipson and Wixson recommend that, rather than to investigate skills in isolation and heavily controlled, studies instead inquire into the circumstances under which disabled readers can be successfully taught.

The present study can be viewed as investigating the circumstances under which disabled readers can be successful. The use of both instruction-range and frustration-range materials, with differential results for cue use and self-corrections, can have important instructional implications.

The Eye -Voice Span

The eye-voice span is a factor which must be considered in a study of the location of self-corrections. The eye-voice span has been defined as the amount of material that can be read after the reader can no longer see the text (Harris & Sipay, 1984). Geyer (1968) found this normally to be about 1 second. Some research indicates that the eye-voice span most commonly extends to phrase or clause

boundaries, rather than stopping in the middle of a phrase or clause (Gibson & Levin, 1975, Resnick, 1970). The present study did not control for the position of the self-corrections with regard to phrase or clause boundaries.

The eye-voice span lengthens developmentally (Levin & Cohn, 1968), and achieves adultlike form at about the fourth grade (Tinker, 1965). Because all the readers in this study are above the fourth grade level, they can be assumed to have achieved their adultlike eye-voice span.

There is some evidence to indicate that the eye-voice span is longer for good readers than for poor readers (Clay & Imlach, 1971; Harris & Sipay, 1984). The implication of this finding for the present study is that it can be expected that the disabled readers will produce fewer corrections than the good readers at the longer distances from the miscue.

There are many studies which indicate that the eye-voice span varies directly with the difficulty of the material (among others, Wanat & Levin, 1970), and with grammatical complexity (among others, Levin & Turner, 1968; Lawson, 1961; Wanat, 1971). The present study varied the difficulty of the material as a function of the number of the word-recognition errors (for the learning disabled readers). This use of word-recognition error rates has been suggested as a valid reflection of text difficulty (Tamor, 1981). The present study did not control for the

grammatical complexity of the texts or of the phrases and clauses in which the self-corrected miscues occurred.

Structure of the Study

Subjects

Forty-eight subjects were used in this study, eight normal readers and eight learning disabled readers each from three grade levels, fifth, eighth, and eleventh. The normal readers were teacher-selected as being average readers. The learning disabled subjects were selected from among those students who had been diagnosed and labeled as learning disabled in reading skills, and who were assigned to daily resource room instruction in reading. All students were within the normal IQ range, and none exhibited any exceptionality other than learning disabilities in the learning disabled group. This study did not control for subjects' ages or histories of retention in grade.

In order to participate in this study, subjects were required to provide written parental permission, and also to agree verbally to participate at the time of testing.

Texts

The texts used in this study were excerpts from narrative texts from basal readers or from works of literature. The basal readers used were not those which the students used in their classroom reading instruction. The

literature texts were selected from among those commonly used in middle- and secondary-level language arts classes; for example, A Tale of Two Cities by Charles Dickens and Moby Dick by Herman Melville. Each subject read at least 260 words and not more than 900 words in each text.

At the time of testing, the examiner introduced each text by a brief, 3-4 sentence statement describing the text. Subjects read one or more texts until the examiner judged informally that the subject's performance fell within the desired accuracy range, instructional (3%-9% word recognition errors) and frustration (more than 9% word recognition errors). Later these informal judgments were verified by actual count of miscues. For the normal readers of each grade level, a single text which fell within the instructional range was selected for further analysis, and the other texts were eliminated from further consideration. For the LD readers, two texts were selected: one from the instructional range and one from the frustration range.

Data Collection

The methodology for this study was the analysis of oral reading errors. The subjects were seen individually in a room set aside in their own school, during the regular school day. They were told that the examiner required their help in investigating the kinds of behaviors showed by readers of different ages when they were reading out loud.

They were further told that they would be asked to read several texts out loud into the tape recorder, that some might be easy and some might be hard, and that no questions would be asked about the material afterward. They were asked to read just as they would read any school work, and to do their best. Any student who expressed an unwillingness to participate at this time was excused. The examiner then introduced the particular text with a 3-4 sentence explanation, and the student read. No comprehension check was conducted.

Later the transcripts of the readings were analysed for the following miscue types: substitutions, omissions, and insertions. The total number of miscues for each text was calculated as a percentage of the total number of words in that text. This percentage was used to classify each text into an error range: 3%-9% errors, instructional range; over 9%, frustration range. Each miscue was counted as one error, whether or not it was self-corrected. The number of self-corrections in a text was calculated as a percentage of the total number of errors in that text.

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Each self-correction was then categorized in terms of the location of its occurrance in the text:

a) immediate self-correction (I), in which the correction occurred immediately after the miscue and before any more words could be read;

b) delayed by 1 word (D1), in which the correction occurred after the reading of a single word beyond the miscue; and,

3) delayed by two or more words (D2+), in which the correction occurred after the reading of two or more words beyond the miscue.

For each text, the number of miscues appearing in each location was calculated as a percentage of the total miscues for that text.

Data Analysis

Two analyses were conducted on these data. The first was a two way, 3 x 3 (Grade x Ability) ANOVA which compared the mean percentages of self-corrections for readers at the three grade levels, fifth, eighth, and eleventh. At each grade level, three groups of readers were used: normal readers reading in the instructional range, and learning disabled readers reading in the instructional range and the frustration range.

The second analysis was a three way, 3 x 3 x 3 (Grade x Ability x Location) ANOVA which also compared readers at the three grade levels (fifth eighth, and eleventh), and again used three reader groups at each grade level (normal readers reading in the instructional range, and learning disabled readers reading in the instructional and frustration ranges). The three elements of the location variable are as described above. The purpose of this analysis was to determine whether or not there were any significant differences in the relative mean percentages of the location of the self-corrections.

When significant differences were found in the main effects of the analyses of variance, Tukey's procedure was conducted in order to determine the cells in which the differences occurred, and to rank the cell means in order of magnitude.

Results

In the first analysis of variance, the comparison of the mean percentages of self- corrections for the three ability levels at the three grade levels showed no significant differences for either grade, Fcalc = 3.04 (df 2, 63), F crit = 3.13, $p < .05$, or ability, Fcalc = 1.33 (df 2, 63), Fcrit = 2.51, $p < .05$.

The second analysis of variance produced one significant main effect and two significant interactions. The main effect was in the location variable, Fcalc = 333.71 (df 2, 216), Fcrit = 3.04, $p < .01$. These data are presented in Table 1. When Tukey's procedure was conducted on these results, the three locations fell into three groups, ranked in order here from highest to lowest:

1) Immediate correction, $\overline{X} = 76.18$;

2) Correction delayed by one word, $\overline{X} = 15.40$; and,

3) Correction delayed by 2 or more words, $\overline{X} = 7.61$.

These rankings were significant at the .01 level, Q = 3.64 (2, 216). This analysis is presented in Table 2.

The first significant interactions was the two-way interaction of grade and location, Fcalc = 6.88 (df 4,216), Fcrit = 3.41, $p < .01$. The means of the nine groups in this interaction are as follows:

Grade Level	Correction Location	Mean % Self-Corrections
Grade 5	Immediate	73.11
	Delayed 1 word	19.83
	Delayed 2+ words	7.06
Grade 8	Immediate	72.92
	Delayed 1 word	16.33
	Delayed 2+ words	10.40
Grade 11	Immediate	82.91
	Delayed 1 word	10.04
	Delayed 2+ words	5.38

The second significant interaction was the two-way interaction of ability with location, Fcalc = 2.56 (df 4, 216), Fcrit = 2.42, $p < .05$. The means of the nine groups in this interaction are as follows.

Reader Group	Correction Location	Mean % Self-Corrections
Normal	Immediate	82.85
	Delayed 1 word	9.17
	Delayed 2+ words	7.98
LD (instructional)	Immediate	64.54
	Delayed 1 word	24.53
	Delayed 2+ words	10.09
LD (frustration)	Immediate	81.15
	Delayed 1 word	12.50
	Delayed 2+ words	4.76

For two of the variables in this analysis, no significant main effects were found. First, no differences were found for grade, Fcalc = .02 (df 2, 216), Fcrit = 3.04, $p < .05$. Second, no differences were found for ability, Fcalc = .02 (df 2, 216), Fcrit = 3.04, $p < .05$.

For two of the interactions in this analysis, no significant differences were found. The first of these was the two-way interaction of grade with ability, Fcalc = .04 (df 4, 216), Fcrit = 2.42, $p < .05$. The second was the three-way interaction of grade and ability with location, Fcalc = .68 (df 8, 216), Fcrit = 1.98, $p < .05$.

Discussion

The results of this study failed to fulfill many of the assumptions and predictions from the literature on self-corrections. One assumption was that the the production of self-corrections varied directly with the understanding of the text and the use of semantic information in the text. One prediction that followed from this assumption was the prediction that disabled readers would not self-correct as often as normal readers. This prediction was based on the expectation that disabled readers would not understand as much about the texts they read as normal readers did. This prediction was not fulfilled by the results of this study, which compared the self-corrections of normal readers

reading in the instructional range, and disabled readers reading in the instructional range and in the frustration range. There were no significant differences among the percentages of self-corrections for the three groups of readers.

There are at least two possible explanations for this result. First, it is possible that there are no differences in the use of context by the three reader groups. A second possibility is that while there are differences in the use of context, self-corrections do not measure this context use.

The second prediction was that readers reading in the frustration range would not self-correct as frequently as when reading in the instructional range. This prediction is based on the expectation that the higher rate of miscues that define the frustration range is a result of a reduced comprehension of the text compared to the comprehension that results in instructional or independent range error rates. This prediction was also not fulfilled. There were no significant differences between the percentages of self-corrections for the disabled readers reading in the instructional range and in the frustration range.

There are two possible explanations for this result. the first is that there are no differences in the use of context by the two groups. The second possibility is that

the error percentages for the instructional- and frustration-range were not sufficiently differentiated to show differences in correction behaviors.

Another assumption was that disabled readers would use mainly the context before their miscues to produce their responses, while normal readers would use context both before and after their miscues for this purpose. Therefore the disabled readers were predicted to produce a larger percentage of corrections immediately at the miscue than the normal readers. Further, the the normal readers were predicted to produce a higher precentage than the disabled readers of corrections that made use of context after the miscue, and therefore would be delayed by one or more words beyond the miscue. Neither of these predictions were fulfilled.

In fact, this analysis produced a peculiar interaction: the immediate corrections for the LD readers reading in the instructional range was significantly lower than for either the normal readers reading in the instructional range, or the LD readers reading in the frustration range, while for these latter two groups there were no significant differences in their percentages of self-corrections in the three locations. Additionally, both the categories of self-correction delayed by 1 word or by 2 or more words were significantly greater for the LD readers in the instructional range than for the other two groups of

readers. If the location of the self-corrections was a measure of the readers' use of context, then LD readers reading in the instructional range should have produced self-correction percentages similar to that of the normal readers reading in the instructional range, while the percentages of the LD raeaders reading in the frustration range should have been lower than for the other two groups.

It is possible that the lower percentage of immediate corrections for the LD readers in the instructional range is a result of some strategy, undefined by this study, which they use to process the text. It is possible that this is an instructional strategy they which the disabled readers use, and which is not taught to normal readers, and not used by the disabled readers as efficiently when the texts are in the frustration range as when they are in the instructional range. This would explain why the LD readers in the instructional range are the only ones who show such a reduced percentage of immediate self-corrections, while the other two highly diverse groups do not show such a reduced percentage of immediate corrections.

The second interesting interaction from this analysis involved the grade-related developmental sequence of immediate self-corrections. When the data were collapsed over the ability levels, the eleventh graders (of all ability levels combined) produced a significantly higher percentage of immediate self-corrections than did the other

two grade levels. The question that arises from this result is what effect grade level has on context use in oral reading. It may be that the eye-voice span for written material shows an increase at some grade level between the eighth and eleventh grades. In this case, the eleventh graders are using context both before or after their miscues, but producing the corrections immediately after the miscue. It may alternatively be that by eleventh grade, they have become so proficient in the use of the context prior to the miscues that they do not require the use of the context after a miscue to correct that miscue.

Conclusions

This study investigated the self-correction behaviors of three groups of readers at three grade levels, 5, 8, and 11: normal readers reading in the instructional range, and learning disabled readers reading in the instructional and frustration ranges. The result of this study indicated that when the locations of the corrections were investigated, (immediate correction, correction delayed by 1 word, and correction delayed by 2 or more words), all groups produced a vastly greater percentage of miscues immediately after the miscue, and significantly fewer delayed by 1 word and delayed by 2 or more words. There were no significant

differences in the percentage of corrections produced by the three grade levels or the three ability levels.

These results contradict a number of the predictions of self-correction behaviors which were postulated by past literature. The results of this study indicate that the disabled readers do not self-correct a lower percentage of their miscues than normal readers. The results further indicate that LD readers reading texts in the instructional range do not produce a higher percentage of self-corrections than the same readers reading texts in the frustration range.

In view of the results of this study, it does not appear that self-corrections are differentially produced by normal and disabled readers, either when the disabled readers are reading instructional or frustration range material. Therefore, it is not viewed as productive to institute instructional programs designed to increase self-correction behaviors disabled readers.

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Table 1: Summary Table for the Three-Way 3 x 3 x 3 (Grade x Ability x Location) Analysis of Variance for Location of Self-Corrections.

Source	SS	MS	df	F	Fcrit	Sig
Grade	10.03	5.01	2	.02	3.04	ns
Ability	11.15	5.58	2	.02	3.04	ns
Location	202963.61	101481.81	2	333.71	3.04	.01
Grade x Ability	46.75	11.69	4	.04	2.42	ns
Grade x Location	8380.64	2095.16	4	6.89	3.41	.01
Ability x Location	3120.24	780.06	4	2.57	2.42	.05
Grade x Ability x Location	1695.94	207.49	8	.68	1.98	ns
Within	57474.53	304.10	189			
TOTAL	273666.88		215			

Table 2: Results of Tukey's Procedure for Rank-Ordering the Means of the Locations of Self-Corrections.

Group	Mean	*	Sig
Immediate Self-Correction	76.18	]	.01
Self-Correction Delayed by 1 word	15.40	]	
Self-Correction Delayed by 2 or more words	7.61	]	

* Note that there are no differences between or among the means enclosed within a bracket. Differences exist between or among means within one bracket and the means below that bracket.